

Pelvic floor muscle strength testing

Description

Manual or digital muscle testing (DMT) of pelvic floor muscle (PFM) strength is used by physiotherapists and other clinicians who assess and treat patients presenting with weakened PFMs, often with symptoms of incontinence or prolapse. The scale can be used to assess PFM strength per vaginam or per rectum, and has been applied in both adult female and male populations.

Instructions to patient and rating: The first step is to ensure the patient is able to contract the PFM correctly via a tightening and drawing in of the superficial (perineal) and deep (levator ani) layers of the PFM. Visual observation can confirm perineal/sphincter tightening and in-drawing, but does not give further information of the levator ani strength. Digital palpation is required for evaluation. The patient is instructed to 'squeeze and lift the PFM'. Sometimes further explanation is required to elicit the correct technique. The time taken to score the strength grade is quite short, usually the best of 3 maximum voluntary contractions, held for 3–5 seconds. Determination of the grade applied is subjective, as it relies on the clinician's interpretation of the amount of squeeze +/- lift present. As the PFM is a dome-shaped muscle, voluntary contraction is thought to occur in 3 planes: medio-lateral occlusion, postero-anterior draw, and cephalad displacement. Grading of this complex contraction, where components of movement (of varying degrees) may be perceived in 1, 2 or all 3 planes with the final grade applied being a 'net' effect of these movements felt by the examining finger(s), requires a 'best guess' on the part of the clinician.

Reliability and validity: Over 20 different scales for digital/manual grading of PFM function have been reported in the literature (Van Kampen et al 1996). The scale used most commonly by physiotherapists is the Modified Oxford

Scale (MOS). This is a 6-point scale described as: 0 = no contraction, 1 = flicker, 2 = weak, 3 = moderate (with lift), 4 = good (with lift), 5 = strong (with lift) (Laycock & Jerwood 2001). Commonly, clinicians aim to increase the sensitivity of this scale by incorporating 'half-grades' (eg, 3+ or 3-) which results in a 15-point scale. The MOS scale demonstrates variable reliability with kappa and correlation values ranging from moderate to very good. The variation in results may also be explained by the subjective nature of the grading system. The addition of 'half-grades' to the MOS DMT has been found to reduce intra-therapist reliability significantly (Frawley et al 2006). Digital muscle testing scales are often validated against other 'gold standard' or more objective measures of PFM contractility, such as pressure manometry (measures the occlusive aspect of a PFM contraction) and transperineal or transabdominal ultrasound (measures the elevating aspect). Higher correlations for the MOS and manometry have been reported (Isherwood & Rane 2000) than between ultrasound and the MOS (Thompson et al 2006), suggesting that no single measurement tool tests all aspects of PFM contractility.

The current recommendation by the International Continence Society (Messelink et al 2005) is to adopt a new, simpler grading scale of 4 points: absent, weak, normal (interpreted as 'moderate') and strong to reflect the total of the tightening, lifting and squeezing action. Reports of validity/reliability testing of this new scale have not yet been published. Clinicians and researchers are encouraged to record exact positioning of the patient, number of examining digits (1, 2), position of digits (vertical/horizontal position, pads up/down) as all these variations can affect the strength grade ascribed.

Commentary

Knowledge of PFM anatomy and clinical experience in per vaginam and per rectum palpation of PFM contractility is required to apply a strength grading system accurately. Digital muscle testing using any of the currently described strength grading scales may not be suitable to grade the contractility of overactive PFM, which are often present in patients who present with pelvic/perineal pain and/or vaginismus disorders. There has been even less published on appropriate muscle grading scales for overactive/painful PFM.

While DMT is a low cost technique, relatively easy to conduct once sufficient instruction has occurred, and is well tolerated by patients; its value in scientific research is debatable. The ability of the clinician to digitally discriminate squeezing versus lifting activity in the PFM is

unclear, hence the most appropriate grading scale to record this has yet to be determined. Interpretation of the values of the DMT is limited as normative data on the strength of the PFM have not been reported. Furthermore, while statistically significant change in PFM strength measured by DMT has been reported following PFM training, the clinical significance of this change is unknown.

Grading of the strength of the PFM via a DMT is a useful clinical, and possibly research, tool, despite the shortcomings outlined. Future research and testing of the newly proposed scale will bolster the confidence clinicians have in utilising DMT.

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References

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